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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,014	11/21/2003	Jong-Hwa Lee	5000-1-480	5655

33942 7590 06/29/2007
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EXAMINER

HENNING, MATTHEW T

ART UNIT	PAPER NUMBER
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2131

MAIL DATE	DELIVERY MODE
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06/29/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/721,014

Applicant(s)

LEE ET AL.

Examiner

Matthew T. Henning

Art Unit

2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/13/2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 12/13/2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

Claims 9-20 are objected to because of the following informalities: Claim 9 recites "to transmit/receive data", which is unclear as to whether the terminal is transmitting, receiving, or both. For the purpose of searching prior art, the examiner will assume that the limitation was meant to read "to transmit or receive data". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation "as specified by the Infrared Data Association" is a limitation which renders the claim indefinite. The limitation is not static, and changes over time as the specification issued by the IrDA changes over time. Because of this, the claim language is directed towards subject matter which changes over time, and thus the scope of the claim changes over time. For example, if the IrDA changed the specification today to require a "foo",

Art Unit: 2131

1 the scope of the claim language would be different than it was yesterday before the requirement
2 of the "foo". As such the scope of the claim is unclear.

3 ***Claim Rejections - 35 USC § 103***

4
5 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
6 obviousness rejections set forth in this Office action:

7 (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
8 section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
9 such that the subject matter as a whole would have been obvious at the time the invention was made to a person
10 having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the
11 manner in which the invention was made.

12
13 Claims 1, 4, 5, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over
14 Bjorndahl (US Patent Number 6,396,612), and further in view of Suzuki (Patent Application
15 Publication 2002/0167991).

16 Regarding claim 1, Bjorndahl disclosed a method for transmitting an encoded radio
17 signal (See Bjorndahl abstract), the method comprising: a first step in which a radio terminal
18 (See Fig. 2 Element 20) of a transmission part uses an infrared channel to request, of a radio
19 terminal of a reception part, a security key (See Bjorndahl Col. 5 Lines 54-55); a second step in
20 which the radio terminal of the transmission part receives, in response to the request, a security
21 key transmitted from the radio terminal of the reception part (See Bjorndahl Col. 5 Lines 61-64);
22 a third step in which the radio terminal of the transmission part encodes transmission data using
23 the received security key (See Bjorndahl Col. 5 Lines 61-65); and a fourth step in which the
24 radio terminal of the transmission part uses radio to transmit the encoded transmission data to the
25 radio terminal of the reception part (See Bjorndahl Col. 5 Lines 40-46, and 61-65), but Bjorndahl
26 failed to disclose the use of ultra-wideband.

1 Suzuki teaches an ultra-wideband transmitter and receiver (See Fig. 11 and related text)
2 and further that ultra-wideband provides low signal power density as well as high-speed wireless
3 transmission (See Paragraph 007).

4 It would have been obvious to the ordinary person skilled in the art at the time of
5 invention to employ the teachings of Suzuki in the radio system of Bjorndahl by using the ultra-
6 wideband transmitter and receiver as the radio portion of the dual mode devices. This would
7 have been obvious because the ordinary person skilled in the art would have been motivated to
8 make it difficult to interfere with other wireless devices and to provide for high-speed
9 transmission.

10 Regarding claim 4, the combination of Bjorndahl and Suzuki disclosed that one of the
11 ultra-wideband terminals of the transmission part and of the reception part is configured to
12 perform as a client and the other of the terminals is configured to perform as a server to the client
13 (See Bjorndahl Col. 5 Lines 54-65).

14 Regarding claim 5, the combination of Bjorndahl and Suzuki disclosed a method for
15 receiving an encoded ultra-wideband signal, the method comprising: a first step of receiving a
16 security key request signal from an ultra-wideband terminal of a transmission part (See
17 Bjorndahl Col. 5 Lines 54-55); a second step of transmitting the security key to the ultra-
18 wideband terminal of the transmission part using an infrared radiation channel and of storing the
19 security key (See Bjorndahl Col. 5 Lines 55-58); a third step of receiving encoded data
20 transmitted from the ultra-wideband terminal of the transmission part through ultra wideband
21 (UWB) (See Bjorndahl Col. 5 Lines 61-65); but failed to specifically disclose the terminal
22 generating the security key, or a fourth step of restoring original data from the data received

1 through the third step using the security key stored through the second step. However, it was
2 well known in the art to generate encryption keys on the fly, as well as to use the encryption key
3 to decrypt received encrypted data, and as such it would have been obvious to the ordinary
4 person skilled in the art to have done so.

5 Regarding claim 8, it was well known at the time of invention that the IrDA provided
6 globally adopted specifications for infrared data transmission and as such it would have been
7 obvious to the ordinary person skilled in the art to have conformed the infrared transmissions to
8 those specifications.

9 Claims 2-3 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the
10 combination of Bjorndahl and Suzuki as applied to claims 1 and 5 above, and further in view of
11 Lerner et al. (US Patent Number 6,169,02) hereinafter referred to as Lerner.

12 Regarding claims 2 and 6, the combination of Bjorndahl and Suzuki disclosed a
13 transmission of a key from one terminal to another and then using the key for encrypting
14 transmission data (See Bjorndahl Col. 5 Lines 54-65), but failed to disclose providing an
15 acknowledgement of receipt of the key from the receiving terminal to the sending terminal.

16 Lerner teaches that in order to maintain synchronization of keys in a key updating
17 system, a key receipt acknowledgement should be sent from the recipient to the sender (See
18 Lerner Col. 9 Line 64 – Col. 10 Lien 3).

19 It would have been obvious to the ordinary person skilled in the art at the time of
20 invention to employ the teachings of Lerner in the key updating system of Bjorndahl and Suzuki
21 by sending an acknowledgement of receipt of the key from the receiving terminal to the sending
22 terminal. This would have been obvious because the ordinary person skilled in the art would

1 have been motivated to ensure that the synchronization of the keys was maintained in the event
2 that there was an error in the transmission of the key.

3 Regarding claims 3 and 7, see the rejections of claims 4 and 8 above.

4 Claims 9-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the
5 combination of Bjorndahl and Suzuki as applied to claim 1 above, and further in view of Bianco
6 et al. (US Patent Number 5,365,588) hereinafter referred to as Bianco.

7 Regarding claim 9, the combination of Bjorndahl and Suzuki disclosed an ultra-wideband
8 terminal comprising: a control section for controlling the ultra-wideband terminal to use an ultra
9 wideband to transmit/receive data encoded by a predetermined security key (See Bjorndahl Col.
10 5 Lines 54-65 and the rejection of claim 1 above) and to use an infrared radiation channel to
11 transmit/receive the security key (See Bjorndahl Col. 5 Lines 54-65); an ultra-wideband process
12 section for using ultra wideband to perform data communication with another ultra-wideband
13 terminal (See Bjorndahl Fig. 2 Element 20, Suzuki Fig. 11, and the rejection of claim 1 above);
14 an infrared radiation process section for performing data communication using said infrared
15 radiation channel with said another ultra-wideband terminal (See Bjorndahl Col. 5 Lines 54-65);
16 and a security key generation section for generating a security key in response to a security key
17 generation command of the control section (See the rejection of claim 5 above) but failed to
18 disclose a first data buffer for storing either transmission data to be transmitted to said another
19 ultra-wideband terminal that have not yet been encoded, or data restored after being received
20 from said another ultra-wideband terminal.

Art Unit: 2131

1 Bianco teaches that in order to perform high speed encryption or decryption an input data
2 buffer should be provided and an output data buffer should be provided (See Bianco Col. 5 Lines
3 31-41).

4 It would have been obvious to the ordinary person skilled in the art at the time of
5 invention to employ the teachings of Bianco in the encryption/decryption system of Bjorndahl
6 and Suzuki by providing the input and output buffering system of Bianco in the encryption. This
7 would have been obvious because the ordinary person skilled in the art would have been
8 motivated to provide high-speed encryption and decryption.

9 Regarding claim 10, it was obvious that the key was stored in both terminals in order for
10 it to have been used for future communications.

11 Regarding claim 11, the combination of Bjorndahl, Suzuki and Bianco disclosed a second
12 data buffer for storing encoded data to be transmitted to said another ultra-wideband terminal
13 through the ultra-wideband process section and for storing data received from another ultra-
14 wideband terminal that have not yet been restored (See the rejection of claim 9 above and
15 Bianco).

16 Regarding claim 12, the combination of Bjorndahl, Suzuki and Bianco disclosed that
17 when there is data to be transmitted to said another ultra-wideband terminal in the first data
18 buffer, the control section requests a security key to said another ultra-wideband terminal
19 through the infrared radiation process section; and when a security key is received from said
20 another ultra-wideband terminal through the infrared radiation process section, the control
21 section stores the received security key in the security key buffer (See the rejection of claim 1
22 above as well as Bjorndahl Col. 5 Lines 34-46).

1 Regarding claim 13, the combination of Bjorndahl, Suzuki and Bianco disclosed that the
2 control section encodes transmission data stored in the first data buffer using said received
3 security key, stores the encoded transmission data in the second data buffer, and controls the
4 second data buffer so that the encoded transmission data are transmitted to said another ultra-
5 wideband terminal through the ultra-wideband process section (See the rejection of claims 1 and
6 9 above and Bjorndahl Col. 5).

7 Regarding claims 14-18, the combination of Bjorndahl, Suzuki and Bianco disclosed that
8 the ultra-wideband process section and the infrared radiation process section are each configured
9 for using ultra-wideband to perform data communication with a plurality of ultra-wideband
10 terminals (See Bjorndahl Col. 5 Lines 54-65); the security key buffer is configured for storing a
11 security key received from any of the plural ultra-wideband terminals (See the rejection of claim
12 10 above and Bjorndahl Figs. 1 and 2 wherein it was well known that a wireless device can
13 communicate with multiple base stations and other wireless devices); and the second data buffer
14 is configured for storing encoded data to be transmitted to any of the plural ultra-wideband
15 terminals through the ultra-wideband process section and for storing data not yet restored which
16 has been received from any of the plural ultra-wideband terminals (See the rejection of claim 9
17 above).

18 Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the
19 combination of Bjorndahl, Suzuki and Bianco as applied to claim 9 above, and further in view of
20 Chaum (US Patent Number 4,529,870).

21 The combination of Bjorndahl, Suzuki and Bianco disclosed that when having received
22 encoded data through the ultra-wideband process section, the control section stores the encoded

Art Unit: 2131

1 data in the second data buffer and restores original data from the data stored in the second data
2 buffer using a security key stored in the security key buffer (See the rejection of claim 9 above),
3 and the control section, upon said storing the security key, reads from the security key buffer said
4 security key generated and performs a control operation so that said security key generated is
5 transmitted to said another ultra-wideband terminal through the infrared radiation process section
6 (See Bjorndahl Col. 5 Lines 54-65), but fails to specifically teach that the control section
7 transmits a security key generation command to the security key generation section in response
8 to a security key request signal received through the infrared radiation process section.

9 Chaum teaches in order to allow a cryptographic device to operate in an unpredictable
10 manner, that upon request, a random encryption key is generated by a key generator (See Chaum
11 Col. 7 Line 51 – Col. 8 Line 15).

12 It would have been obvious to the ordinary person skilled in the art at the time of
13 invention to employ the teachings of Chaum in the encryption key distribution system of
14 Bjorndahl, Suzuki and Bianco by having the base station issue a request for a random key to a
15 random number generator and having the random number generator generate the encryption key.
16 This would have been obvious because the ordinary person skilled in the art would have been
17 motivated to allow a cryptographic device to operate in an unpredictable manner.

18 *Conclusion*

19 Claims 1-20 have been rejected.


20 The prior art made of record and not relied upon is considered pertinent to applicant's
21 disclosure.

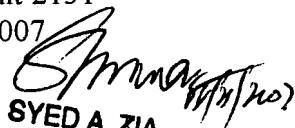
Art Unit: 2131

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew T. Henning whose telephone number is (571) 272-3790. The examiner can normally be reached on M-F 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Matthew Henning
Assistant Examiner
Art Unit 2131
6/19/2007


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